REMARKS

In response to the notice of non-compliance, of the response to the restriction requirement filed by applicants, mailed on July 10, 2009, Applicants request an extension of time for two months. Applicants elect a single species as required. Applicants had previously elected with traverse Group I (claim 1-16), drawn to peptide and methods of use of the peptide. Applicants objected to the restriction in that the inventions relate to a single inventive concept, disclosure of related peptides that block actin depolymerization through an F-actin-related mechanism.

Examiner also required an election of species from the sequences of SEQ ID NOS: 1-8, 10, 12, 14, 17, 19-24. Applicants' attorney had elected the species of claims 5, 13 and 16 and SEQ ID Nos. 1-8, 19-21, and 24 as the species of those claims. Since that election was considered non-responsive, Applicants elected the species of SEQ ID NO: 12, which requirement for election is also traversed.

Applicants respectfully disagree with the Examiner's statement that "[p]eptides and polynucleotides do not have a common property or activity, and do not share any significant structural elements" as a basis that there is no single inventive concept that is shared by the Group II claims and Group I claims. Such a simplified conclusion does not consider that the Group II claims depend from the Group I claims or that the claimed polynucleotides encode for the claimed peptides or what one skilled in the art would conclude. Furthermore, the Examiner has not stated any burdensome search would be required. Absent that, Applicants' respectfully request that the Examiner reconsider the restriction as improperly made. Lastly, Applicant did specifically point out the errors in the restriction and thus, Applicants respectfully submit that the consideration of the election as without traverse to be improper.

Applicants have amended the claims 1-16. No new matter is believed to be added by these amendments.

Applicants have corrected Figures 1A and 1B to correspond with SEQ ID NOs: 1,2, 3, 11, and 23 as shown in the Sequence Listing filed June 16, 2008. A marked up copy and clean copy of the drawings are included in this response.

Applicants also have corrected SEQ ID NOS: 2-4 in paragraph 11 to correspond to the Sequence Listing filed on June 16, 2008.

The amino acid sequences in paragraphs [013], [049], [056], [057], and [058], the consensus sequence in Table 1 and the sequences in claims 5, 6, 10, 13 and 14 were added as SEQ ID NOS: 25 to 29 in the accompanying substitute Sequence Listing filed along with this response. A paper copy of this Sequence Listing is also attached and a request that this Sequence Listing be entered into the Specification. Applicants hereby certify that the computer readable version and the paper copy of the Sequence Listing are the same and include no new matter.

Applicants attach a black & white version of Figures 3 and 6.. An amendment to the specification at paragraphs [024], [026] and [027] which state that the drawings are color photographs has been amended to remove the word "color". Colored drawings were provided to the Office because prior to the Electronic Filing System set up by the Office, Applicants noted that black & white copies made by the Office of colored drawings often were reproduced with much better resolution and quality. Applicants have also bolded the labels A-F in Figures 3 and 4 as the Office has noted that they were illegible in the submitted drawings.

The Office Action noted that SEQ ID NO:18 in Figure 1A include three superscript "^{N}"s. These were intended to represent the amine bonds present in the peptides and not intended to

represent other amino acids such as asparagine. Please see the peptide sequence of SEQ ID NO:18 as shown in the listing of peptides in paragraph [011].

Applicants have addressed the objections to the specification in paragraph 4 on page 5 of the Office Action in the amendments to the specification.

The Office Action required that claim 15 be rewritten as it was deemed an improper claim depending from claim 14. Applicants respectfully note that claim 15 depends from claim 13 not claim 14 thus the objection to claim 15 is deemed inapplicable and moot.

Claim 4 was objected to by the Office Action as an improper incorporation by reference. Applicants do not agree that the incorporated by reference of GenBank Accession Number 1498382 is improper. With the sole purpose of furthering Applicants' patent goals, claim 4 is amended, thus rendering the objection to the claim moot. However, Applicants note that incorporation by reference of publicly available material is allowable. GenBank Accessions are publicly available . One having skill in the art would know what the GenBank Accession number is being referred to in order to identify and describe the claimed peptides.

Claims 1-10 were rejected under 35 U.S.C 102(a) and/or (e) as anticipated by Liu et al in U.S. Patent Application Publication 2003/0034888, which teaches a polypeptide identified as SEQ ID NO:54668. The Office Action alleges that "[r]esidues 19-34 of Liu's polypeptide correspond to Applicants' SEQ ID NO:12, and residues 26-31 correspond to Applicants' SQ ID NO:22. In view of the similarity in amino acid sequence between Liu et al's polypeptide and Applicants' claimed peptide, inherently Liu et al's polypeptide will bundle actin and inhibit actin depolymerization to the same extent claimed by Applicants. " Office Action page 10.

Applicants respectfully disagree that the disclosed polypeptide by Liu et al would inherently bundle actin and inhibit actin depolymerization. The *Zea mays* and *Glycine max*

sucrose synthase proteins may have these subsequences of SEQ ID NO: 22 and 12 embedded in their native sequence, however, these proteins have not been shown to have the same actin bundling activity of the claimed polypeptides. See H. Winter, et al., *FEBS Letters*, Volume 430, Issue 3, 3 July 1998, pages 205-208, by two of the named inventors, which was also submitted in the IDS of record and considered by the Examiner, which states that. "some of the 'soluble' SuSy may actually be bound to the actin cytoskeleton in vivo. The significance of the association of SuSy with actin remains to be elucidated. By analogy with animal systems, where association of enzymes with microtubules and actin filaments is well documented [12, 14, 15], binding could function to regulate activity or provide a scaffold for juxtaposition of enzymes from the same pathway." Also these native sucrose synthase proteins often require phosphorylation and are regulated by the sucrose concentration for F-actin binding activity.

Thus, just as the *Zea Mays* native sucrose synthase proteins have not been shown to cause F-actin bundling even though it associates with F-actin, one having skill in the art would not conclude that the Liu polypeptide would cause actin bundling and inhibits actin depolymerization as claimed by Applicant. The Liu polypeptide is 97 residues long and the subsequences of SEQ ID NOS:12 and 22, which are 6 and 16 residues in length respectively, are set in the center of the polypeptide. The F-actin bundling activity, if any, of this polypeptide cannot be determined without actual experimentation. Thus, Applicants argue that the Liu polypeptide would not inherently bundle actin and inhibit actin depolymerization as claimed by Applicants in claim 1..

Applicants have amended the claims to recite that the claimed polypeptides "causes 50% bundled actin and inhibits actin depolymerization when polymerized in vitro with actin at a

molar ratio of at least 10 to 1" and in some dependent claims the limitation of "a molar ratio of at least 100 to 1" was added.

Applicants also submit that the claims are not obvious over the prior art because Liu et al does not teach or suggest that the specific residues as isolated by the Applicants would be responsible for bundling actin and inhibiting actin depolymerization. Therefore, Liu et al.does not teach or suggest the specific peptide and activity of Applicants claimed peptides and said properties cannot be said to be inherent, Applicants respectfully request that the rejection be withdrawn and the claims as amended be allowed.

Applicants also note that Claims 11-16 were rejected as marked in the Office Action Summary, however, the Office Action does not provide any details of such a rejection. Applicants respectfully request clarification of whether this was an inadvertent mistake and Claims 11-16 are allowed, or request a subsequent Action which describes the rejections made by the Office.

CONCLUSION

No new matter is believed to be added by the amendments to the specification, drawings and claims. Applicants believe these amendments place the application and claims in the form for allowance. Applicants hereby request an extension of time for three months and attach a petition for extension of time. The Office is authorized to deduct the fee of $1100.00. The PTO is also hereby authorized to charge any necessary and additional fees that may be due to Deposit Account No. 12-0690. In furtherance of prosecution, the Examiner is invited to call the undersigned to discuss the application and its claims.

.

Respectfully submitted,

Dated : March 29, 2010

BY: _____/Michelle Chew Wong/_____
Michelle Chew Wong
Reg. No. 50,456
(510) 495-2456

Lawrence Berkeley National Laboratory
One Cyclotron Road, Mail Stop 56A-120
Berkeley, California 94720
Telephone (510) 486-7058
Facsimile (510) 486-7896